

# MASSACHUSETTS TEACHERS' RETIREMENT SYSTEM



## Annual Statement of the Financial Condition of the Massachusetts Teachers' Retirement System

To the Public Employee Retirement Administration  
Commission  
for the year ended June 30, 2019

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To the Public Employee Retirement Administration Commission  
for the fiscal year ended June 30, 2019

DATE OF FILING: DECEMBER 31, 2019

## THE MASSACHUSETTS TEACHERS' RETIREMENT BOARD

**Jeff Wulfson**

Chair

Designee of Commissioner of Department of Elementary and Secondary Education

**Deborah B. Goldberg**

State Treasurer

Chair, Pension Reserves Investment Management (PRIM) Board

**Suzanne M. Bump**

State Auditor

**Dennis J. Naughton**

Elected by the membership

MTRS appointed representative to the PRIM Board

Retired Massachusetts educator

**Richard L. Liston**

Appointed by the Board

Retired Massachusetts educator

**Jacqueline A. Gorrie**

Elected by the membership

Retired Massachusetts educator

**Anne Wass**

Appointed by the Governor

Retired Massachusetts educator

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# MTRS Annual Statement

For the fiscal year ended June 30, 2019

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## Board Certification of Annual Statement

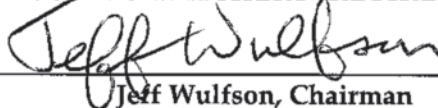
**ANNUAL STATEMENT**  
for the  
**FINANCIAL CONDITION**  
of the  
**MASSACHUSETTS TEACHERS' RETIREMENT SYSTEM**  
Organized under the Laws of the Commonwealth of Massachusetts  
to the

**COMMISSIONER OF PUBLIC EMPLOYEE RETIREMENT ADMINISTRATION COMMISSION**  
**OF THE COMMONWEALTH OF MASSACHUSETTS**  
**PURSUANT TO THE LAWS THEREOF**

Massachusetts Teachers' Retirement System  
500 Rutherford Avenue, Suite 210, Charlestown, MA 02129-1628  
Telephone: 617-679-6877

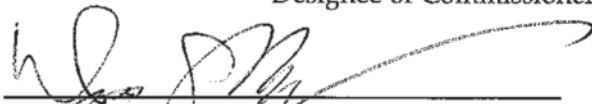
We, the undersigned members of the Teachers' Retirement System, certify under the penalties of perjury, that we are the official board members of said retirement system, and that on the thirtieth day of June last, all of the herein-described assets were the absolute property of said retirement system, free and clear from any liens or claims thereon, except as stated, and the following statements, with the schedules and explanations therein contained, annexed, or referred to, are a full and correct exhibit of all the assets, liabilities, income and disbursements, changes in fund balances and of the conditions and affairs of the said retirement system on the said thirtieth day of June last, and for the year ended on that date, according to the best of our information, knowledge and belief, respectively.

**MASSACHUSETTS TEACHERS' RETIREMENT SYSTEM**

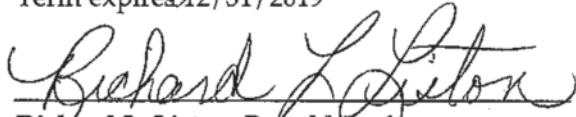


Jeff Wulfson, Chairman

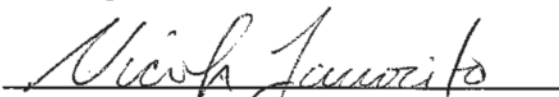
Designee of Commissioner of Elementary and Secondary Education



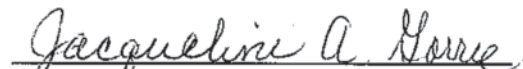
Dennis J. Naughton, Board Member  
Term expires 12/31/2019



Richard L. Liston, Board Member  
Term expires 1/31/2020




Nicola Favorito  
Designee of Deborah B. Goldberg



Jacqueline A. Gorrie, Board Member  
Term expires 12/31/2019



Anne Wass, Board Member  
Serves until a successor is appointed



Michael P. Ruane  
Designee of Suzanne M. Bump

December 13, 2019

To MTRS active and retired members:

We are pleased to submit the Annual Financial Statement of the Massachusetts Teachers' Retirement System (MTRS, System) for the fiscal year ended June 30, 2019. Responsibility for both the accuracy of the financial statements contained herein and the completeness and fairness of the presentation rests with the management of the MTRS. To the best of our knowledge and belief, the enclosed data is accurate in all material respects and is reported in accordance with the financial reporting guidelines of the Public Employee Retirement Administration Commission (PERAC).

### System Overview

The Massachusetts Teachers' Retirement System is a contributory defined benefit plan established on July 1, 1914 pursuant to M.G.L. c. 15, § 16, and governed by M.G.L. c. 32. The largest of the Commonwealth's 104 public retirement systems, the MTRS provides retirement, disability and survivor benefits to over 92,500 active and nearly 68,000 retired educators of the public schools, educational collaboratives and charter schools of the Commonwealth<sup>1</sup>. The MTRS is governed by a seven-member board, as follows:

- Commissioner of Elementary and Secondary Education, or his designee, who serves as Chair
- State Treasurer, or her designee
- State Auditor, or her designee
- Two members elected by the active and retired members of the System
- A retired teacher appointed by the Governor
- A seventh member chosen by the other six board members

The Board appoints the Executive Director who, together with a staff of 90 full-time and 12 part-time professionals in the main and western regional offices, administers the System.

### Benefit Payments

The primary purpose of the MTRS is to provide secure retirement and survivor benefits to Massachusetts public educators and their beneficiaries. Benefit payments to our nearly 68,000 retirees and survivors totaled \$3 billion during the reporting period, an increase of 3.1% over the fiscal year ended June 30, 2018.

In order to ensure that monthly benefits are paid only to eligible benefit recipients, the MTRS conducted the biennial benefit verification process in January 2019, whereby each benefit recipient must return a notarized Benefit Verification Form in order to continue receiving benefits. In addition, MTRS continues to contract with a death match service provider to ensure timely termination of benefits and avoid overpayments to deceased recipients.

### Major Initiatives

Over the course of the fiscal year ending June 30, 2019, the MTRS completed several strategic operational and service objectives, as follows:

#### Disaster Recovery for MTRS Network

In order to fortify the disaster recovery (DR) infrastructure for the MTRS network, following a cost-benefit analysis of colocation versus infrastructure as a service (IaaS/cloud) in consultation with the Executive Office of Technology and Security Services (EOTSS), the MTRS contracted with a state-approved vendor to establish the network DR infrastructure and provide ongoing managed hosting services at Amazon Web Services (AWS). This infrastructure meets both the EOTSS and MTRS security standards for protection of our members' personally identifiable information (PII).

#### Cyber Security

In FY 19, the MTRS continued its cyber security initiatives, including regular staff training sessions on cyber threat detection and prevention. We also implemented regular audits of the member self-service accounts in our line of business application and fortified procedures for benefit recipients' direct deposit changes. Finally, we secured a cyber insurance policy, underwritten by Lloyd's of London, to mitigate risks associated with cyber threats.

#### Member Services

During the reporting period, over 600 active members received pre-scheduled retirement counseling that is offered every two weeks in both the main and regional offices, over 1,300 members received walk-in services, approximately

<sup>1</sup> MTRS membership does not include the teachers and administrators of the Boston Public Schools, who are members of the City of Boston Retirement System.

1,600 members attended nine regional Your MTRS Benefits seminars designed for members at any career stage, and nearly 1,000 members attended nine regional presentations of Ready for Retirement, a program specifically geared toward members who plan to retire within the coming year. Staff also responded to over 4,200 emails and over 42,000 telephone calls. Additionally, we offer a number of tutorial videos for members on our website, which cover the topics of enrollment, refunds, creditable service, retirement benefits and option, as well as the retirement application process.

For our retired members, recognizing that the steady income provided by their MTRS pension is just one facet of a successful and secure retirement, we compiled a list of agencies, services and resources for seniors. The material, "Resources for MTRS Retirees," was distributed to all retirees on our broadcast email list, and is available on our website and in print.

### **Employer Training**

In addition to the training videos available on our web site, in order to support our local school district employers in their MTRS responsibilities, our staff held 12 in-person employer training sessions attended by 186 school district payroll and business officials. The sessions were held in both our Charlestown and Springfield offices.

### **Legislation**

The MTRS supported three major legislative initiatives in FY 19—a creditable service study to analyze and assess the multiple service purchases authorized under the retirement statute, the reform of the pension forfeiture statute, and amendments to the RetirementPlus (R+) election process for members who transfer into the MTRS from another Massachusetts contributory retirement system.

#### **Creditable Service Study**

The MTRS filed legislation to establish a commission to study and evaluate the costs and benefits attributable to the nineteen (19) different service purchases allowed under the Commonwealth's retirement statute, to review the associated actuarial liabilities, to recommend appropriate cost-sharing between employees and employers, to explore whether the types of allowable service purchases should be expanded for improved portability, and recommend any other changes deemed necessary to improve the long-term sustainability of the Massachusetts Teachers' Retirement System (MTRS) and the other Massachusetts contributory retirement systems. Under the current statute, each type of purchase is unique relative to the eligibility criteria, maximum allowable credit, cost method and interest charges. Unlike in most other states where members must pay all or a percentage of the actuarial present value of the increase in benefits resulting from a service purchase, in Massachusetts the member's cost to purchase service has no relationship to the amount of the resulting increase in the member's benefit or the resulting increase in the system's actuarial liability.

Further, as the teaching profession is evolving, with mid-career professionals and short-term educators entering and leaving the workforce, portability of benefits is important, especially in Massachusetts where public employees do not have Social Security coverage. Perhaps a more uniform and cost-balanced, yet less restrictive, service purchase policy could be a positive recruitment tool to allow members to improve their defined benefit while not increasing unfunded liabilities.

#### **Pension Forfeiture**

The MTRS filed legislation similar to that filed by the Public Employee Retirement Administration Commission, which would make substantive and technical changes to the retirement statutes pertaining to the forfeiture of Massachusetts public employee retirement benefits. Most substantively, the legislation would:

- Redefine the phrase "criminal offense involving violation of the laws applicable to his office or position," in the case of a member whose primary job responsibilities involve contact with children to include possession of child pornography under G.L. c. 272, § 29C, as well as other sex offenses involving children;
- Restrict forfeitures to felony convictions (versus misdemeanors);
- Allow for a tiered system of reducing the pension benefit for members with ten or more years of service based on the severity of the member's crime, and allow for total forfeiture of the member's benefit for certain heinous crimes;
- Allow an "innocent beneficiary" to collect an option C survivor benefit;
- Reduce the length of appeals by changing the avenue of appeal from District to Superior Court; and
- Eliminate certain existing avenues to forfeiture that have proven to be too vague or impractical to implement, including the elimination of "moral turpitude" from c. 32 § 10, and a provision under c. 32, §15 that allows for a forfeiture without a final conviction for misappropriation of funds.



### R+ Elections

In order to address and resolve longstanding confusion about R+ participation among members who transfer into the MTRS from other Massachusetts public retirement systems, the MTRS refiled legislation that would eliminate the R+ election for future new teachers who transfer into the MTRS and whose membership service in their local retirement system began after the effective date of the legislation, treating these teachers like all other new teachers. For those teachers who transfer into the MTRS and whose membership in the local retirement system began before the effective date of the legislation, it changes the R+ election to an elect-out instead of the current elect-in. This protects the best interests of those members as they will default into the program, and thus, they will either receive the enhanced R+ benefit, or if they do not work long enough to benefit from the enhanced formula, they will receive a refund of the difference between 11% and their prior contribution rate. Finally, the legislation provides a new, one-time, 180-day confirming R+ election window for members who transferred into the MTRS between 7/1/2001 and the effective date of the legislation, and who failed to respond to their previous R+ election materials.

### Investments

The assets of the MTRS are held in the Pension Reserves Investment Trust (PRIT) fund, established by Chapter 661 of the Acts of 1983, and managed by the Pension Reserves Investment Management (PRIM) Board. The nine-member PRIM Board acts as trustee for the MTRS and other participating retirement systems. Its purpose is to assist the Commonwealth in reducing its unfunded pension liability by maximizing the return on investment within acceptable levels of risk through broad diversification, economies of scale, cost-effective operations, and access to high quality, innovative investments.

For fiscal year ending June 30, 2019, the total PRIT fund return was 6.1% gross of fees (5.7% net), and the MTRS asset balance increased to \$29.5 billion.

### Funding

MTRS benefits are funded from three sources: member contributions, employer contributions, and the investment earnings on the assets of the System. Member contributions are established pursuant to M.G.L. c. 32, § 22. Effective July 1, 2001, all new MTRS members contribute at the rate of 11% of eligible payroll; the average of all MTRS member contributions is slightly over 10% of payroll. Pursuant to M.G.L. c. 32, § 22C, in addition to paying the net normal cost<sup>2</sup> of benefits, the Commonwealth makes annual payments in accordance with a funding schedule, established triennially, which is designed to reduce the unfunded actuarial liability (UAL) to zero by June 30, 2040.

In FY 2019, the Commonwealth appropriated \$2.6 billion for its pension obligations pursuant to the funding schedule, of which \$1.42 billion was allocated to the MTRS. FY 2019 was the second year of the triennial funding schedule established by the Commonwealth in January 2017. In that schedule, the Commonwealth committed to increase the pension appropriation by 8.94% per year for fiscal years 2018-2020. That schedule is designed to reduce the Commonwealth's unfunded liability to zero by 2036, four years ahead of the statutory deadline in 2040. However, 8.94% annual increases backload the Commonwealth's pension obligations, and since the level of annual increases exceeds 6.0%, there is some risk in whether such increases are sustainable over the long term.<sup>3</sup>

Thus, as the Commonwealth plans for the next triennial schedule to be established in January 2020, the MTRS Board, as fiduciaries of the System, will advocate for a schedule that eliminates negative amortization<sup>4</sup> of the UAL in the short-term and provides for a more sustainable annual increase tied to anticipated growth in state revenues going forward.

### Acknowledgements

The preparation of this report is through the combined efforts of MTRS professional staff, and represents our commitment to the MTRS mission: To ensure that members of the Massachusetts Teachers' Retirement System achieve and maintain a successful and secure retirement through responsible benefits administration, financial integrity and the provision of outstanding services.

Respectfully submitted,



Erika M. Glaster, Executive Director

<sup>2</sup> The "normal cost" is the amount that must be contributed to fund the benefits earned by all members of the system in the current year. The "net normal cost" is the employer's share of the normal cost, funded by the Commonwealth.

<sup>3</sup> See Commonwealth Actuarial Valuation Report, January 1, 2019, p. 13.

<sup>4</sup> Negative amortization occurs when the annual payments are insufficient to cover the interest on the pension debt. As a result, the debt continues to grow and the costs are backend loaded.

## Public Pension Coordinating Council Award



Public Pension Coordinating Council

***Public Pension Standards Award  
For Funding and Administration  
2019***

Presented to

***Massachusetts Teachers Retirement System***

In recognition of meeting professional standards for  
plan funding and administration as  
set forth in the Public Pension Standards.

*Presented by the Public Pension Coordinating Council, a confederation of*

National Association of State Retirement Administrators (NASRA)  
National Conference on Public Employee Retirement Systems (NCPERS)  
National Council on Teacher Retirement (NCTR)

A handwritten signature in cursive script, reading 'Alan H. Winkle'.

Alan H. Winkle  
Program Administrator



## Members of the Board



**Jeff Wulfson**  
Chair

Designee of Commissioner  
of Department of  
Elementary and  
Secondary Education



**Jacqueline A. Gorrie**  
Elected by  
the membership

Retired Massachusetts  
educator



**Deborah B. Goldberg**  
State Treasurer

Chair,  
Pension Reserves  
Investment  
Management (PRIM)  
Board



**Anne Wass**  
Appointed by  
the Governor

Retired  
Massachusetts  
educator



**Suzanne M. Bump**  
State Auditor



**Dennis J. Naughton**  
Elected by the  
membership

Retired Massachusetts  
educator;  
MTRS appointed  
representative  
to the PRIM Board



**Richard L. Liston**  
Appointed by the  
Board

Retired  
Massachusetts  
educator

## Annual Statement Balance Tests

For the year ended June 30, 2019

2019

### ASSET BALANCE

Assets Previous Year	\$ 28,791,710,735
Income Current Year	4,192,874,302
Disbursements Current Year	3,447,605,984
<b>Assets Current Year</b>	<b>\$ 29,536,979,053</b>

### ASSET DIFFERENCE

Assets Current Year	\$ 29,536,979,053
Assets Previous Year	28,791,710,735
<b>Difference</b>	<b>\$ 745,268,318</b>

### INCOME DIFFERENCE

Income Current Year	\$ 4,192,874,302
Disbursements Current Year	3,447,605,984
<b>Difference</b>	<b>\$ 745,268,318</b>

### FUND CHANGE DIFFERENCE

Total Fund Change Credits Current Year	\$ 5,500,100,054
Total Fund Change Debits Current Year	4,754,831,736
<b>Difference</b>	<b>\$ 745,268,318</b>

**Annual Statement Balance Tests**

Continued

## Three-Year Comparison

	Fiscal 2017	Fiscal 2018	Fiscal 2019
<b>ASSET BALANCE</b>			
Assets Previous Year	\$ 24,942,072,259	\$ 27,138,608,621	\$ 28,791,710,735
Income Current Year	5,429,520,141	4,991,376,840	4,192,874,302
Disbursements Current Year	3,232,983,779	3,338,274,726	3,447,605,984
<b>Assets Current Year</b>	<b>\$ 27,138,608,621</b>	<b>\$ 28,791,710,735</b>	<b>\$ 29,536,979,053</b>

<b>ASSET DIFFERENCE</b>			
Assets Current Year	\$ 27,138,608,621	\$ 28,791,710,735	\$ 29,536,979,053
Assets Previous Year	24,942,072,259	27,138,608,621	28,791,710,735
<b>Difference</b>	<b>\$ 2,196,536,362</b>	<b>\$ 1,653,102,114</b>	<b>\$ 745,268,318</b>

<b>INCOME DIFFERENCE</b>			
Income Current Year	\$ 5,429,520,141	\$ 4,991,376,840	\$ 4,192,874,302
Disbursements Current Year	3,232,983,779	3,338,274,726	3,447,605,984
<b>Difference</b>	<b>\$ 2,196,536,362</b>	<b>\$ 1,653,102,114</b>	<b>\$ 745,268,318</b>

<b>FUND CHANGE DIFFERENCE</b>			
Total Fund Change			
Credits Current Year	\$ 6,779,708,938	\$ 6,360,836,489	\$ 5,500,100,054
Total Fund Change			
Debits Current Year	4,583,172,576	4,707,734,375	4,754,831,736
<b>Difference</b>	<b>\$ 2,196,536,362</b>	<b>\$ 1,653,102,114</b>	<b>\$ 745,268,318</b>

## Assets and Liabilities

		Fiscal 2017	Fiscal 2018	Fiscal 2019
1100	Cash	\$ 89,529,263	\$ 109,801,216	\$ 87,771,239
1198	PRIT Cash Account	24,277,482	29,048,393	46,828,674
1199	PRIT Capital Fund	26,932,054,215	28,559,010,612	29,318,664,851
1398	Accounts Receivable	102,295,801	110,949,244	98,942,893
1400	Prepaid Postage	163,950	169,481	185,396
1350	Prepaid Contracts	113,453	144,309	294,863
1900	Intangible Software Costs <sup>1</sup>	7,385,793	4,200,112	2,628,886
2020	Accounts Payable	(13,076,252 )	(18,587,117 )	(16,621,786)
2097	Deferred Revenue	(4,135,084 )	(3,025,514 )	(1,715,963)
	Total	<b>\$ 27,138,608,621</b>	<b>\$ 28,791,710,735</b>	<b>\$ 29,536,979,053</b>
3293	Annuity Savings Fund	\$ 7,552,916,713	\$ 7,956,803,663	\$ 8,384,602,651
3294	Annuity Reserve Fund	2,255,262,992	2,102,435,201	1,909,423,209
3295	Military Service Fund	230,034	246,476	281,986
3296	Pension Fund	—	—	—
3298	Expense Fund	—	—	—
3297	Pension Reserve Fund	17,330,198,882	18,732,225,395	19,242,671,207
	Total	<b>\$ 27,138,608,621</b>	<b>\$ 28,791,710,735</b>	<b>\$ 29,536,979,053</b>

## Statement of Funds Flow

	July 1 2018 Balance	Receipts	Inter-Fund Transfers	Disbursements	June 30 2019 Balance
Annuity Savings Fund	\$ 7,956,803,663	\$ 827,195,078	\$(339,967,652)	\$ 59,428,438	\$ 8,384,602,651
Annuity Reserve Fund	2,102,435,201	63,217,073	339,973,478	596,202,543	1,909,423,209
Pension Fund	—	1,612,638,259	967,239,697	2,579,877,956	—
Military Service Fund	246,476	41,336	(5,826)	—	281,986
Expense Fund	—	212,097,047	—	212,097,047	—
Pension Reserve Fund	18,732,225,395	1,477,685,510	(967,239,697)	—	19,242,671,207
<b>Total All Funds</b>	<b>\$ 28,791,710,735</b>	<b>\$ 4,192,874,302</b>	<b>\$ —</b>	<b>\$ 3,447,605,984</b>	<b>\$ 29,536,979,053</b>

## INTER-FUND TRANSFERS

Description	Annuity Savings Fund	Annuity Reserve	Pension Fund	Military Service Fund	Expense Fund	Pension Reserve Fund	Total
New retirees	\$(339,967,652)	\$ 339,967,652	0	0	0	0	\$0
Repay pension and annuity and unretirement	0	0	0	0	0	0	0
New retirees	0	5,826	0	(5,826)	0	0	0
Funding pension benefits	0	0	967,239,697	0	0	(967,239,697)	0
	\$(339,967,652)	\$ 339,973,478	967,239,697	\$(5,826)	\$0	\$ (967,239,697)	\$0

## Receipts

		Fiscal 2017	Fiscal 2018	Fiscal 2019
<b>Annuity Savings Fund</b>				
4891	Members' Deductions	\$ 730,699,407	\$ 755,687,921	\$ 782,430,840
4892	Transfers from Other Systems	17,128,657	23,258,512	22,849,883
4893	Member Make-Up Payments and Redeposits	10,258,376	8,899,092	6,592,003
4900	Member Payments from Rollovers	11,598,326	8,957,304	7,765,220
4820	Investment Income Credited to Members' Accounts	6,776,334	7,152,674	7,557,132
	<b>Subtotal</b>	<b>\$ 776,461,100</b>	<b>\$ 803,955,503</b>	<b>\$ 827,195,078</b>
<b>Annuity Reserve Fund</b>				
4820	Investment Income	72,514,394	68,394,812	63,217,073
	<b>Subtotal</b>	<b>\$ 72,514,394</b>	<b>\$ 68,394,812</b>	<b>\$ 63,217,073</b>
<b>Pension Fund</b>				
4898	3(8)(c) Reimbursements from Other Systems <sup>2</sup>	40,191,430	48,274,990	46,340,895
4899	Received from Commonwealth for COLA <sup>3</sup>	241,574,978	257,216,400	272,588,330
4894	Pension Fund Appropriation <sup>3</sup>	1,134,616,815	1,177,979,267	1,293,639,733
4840	Workers' Compensation Settlement	13,250	23,000	56,725
4841	Recovery of 91A Overearnings <sup>4</sup>	—	4,673	12,576
	<b>Subtotal</b>	<b>\$ 1,416,396,473</b>	<b>\$ 1,483,498,330</b>	<b>\$ 1,612,638,259</b>
<b>Military Service Fund</b>				
4890	Contributions Received for Military Service	1,425	21,411	41,052
4820	Investment Income	230	246	284
	<b>Subtotal</b>	<b>\$ 1,655</b>	<b>\$ 21,657</b>	<b>\$ 41,336</b>
<b>Expense Fund</b>				
4896	Expense Fund Appropriation	203,939,293	214,398,786	212,097,047
	<b>Subtotal</b>	<b>\$ 203,939,293</b>	<b>\$ 214,398,786</b>	<b>\$ 212,097,047</b>
<b>Pension Reserve Fund</b>				
4897	Federal Grant Reimbursement	3,172,830	3,140,623	3,386,210
4822	Interest Not Refunded <sup>5</sup>	121,298	174,456	275,605
4820	Excess Investment Income	2,956,695,845	2,399,051,801	1,449,054,871
4825	Miscellaneous <sup>6</sup>	217,254	3,655,974	41,349
4889	Capital Gain Revenue, G.L. Ch29, 5G	—	15,084,898	24,927,475
	<b>Subtotal</b>	<b>\$ 2,960,207,226</b>	<b>\$ 2,421,107,752</b>	<b>\$ 1,477,685,510</b>
<b>TOTAL RECEIPTS</b>		<b>\$ 5,429,520,141</b>	<b>\$ 4,991,376,840</b>	<b>\$ 4,192,874,302</b>



## Disbursements

		Fiscal 2017	Fiscal 2018	Fiscal 2019
<b>Annuity Savings Fund</b>				
5757	Refunds to Members	\$ 36,058,968	\$ 39,002,238	\$ 40,947,148
5757.1	Section 11 Active Death Refunds	2,439,484	1,700,456	1,966,161
5756	Transfers to Other Systems	11,839,148	8,992,664	16,515,129
	<b>Subtotal</b>	<b>\$ 50,337,600</b>	<b>\$ 49,695,358</b>	<b>\$ 59,428,438</b>
<b>Annuity Reserve Fund</b>				
5750	Annuities Paid	545,675,594	569,908,816	595,059,127
5759	Option B Refunds <sup>7</sup>	—	1,692,197	1,143,416
	<b>Subtotal</b>	<b>\$ 545,675,594</b>	<b>\$ 571,601,013</b>	<b>\$ 596,202,543</b>
<b>Pension Fund</b>				
5751	Pensions Paid (Regular Pension Payments)	2,054,788,066	2,109,583,387	2,159,474,903
5755	3(8)(c) Reimbursements to Other Systems	4,186,412	4,481,619	4,669,160
5755.1	Boston Teachers' Payment	132,477,000	131,297,926	143,145,563
5753	QEBA <sup>8</sup>	4,836	237	—
5752	COLAs Paid	241,574,978	257,216,400	272,588,330
	<b>Subtotal</b>	<b>\$ 2,433,031,292</b>	<b>\$ 2,502,579,569</b>	<b>\$ 2,579,877,956</b>
<b>Military Service Fund</b>				
4890	Return to Municipality for Members Who Withdrew their Funds	—	—	—
	<b>Subtotal</b>	<b>\$ —</b>	<b>\$ —</b>	<b>\$ —</b>
<b>Expense Fund</b>				
5119	Salaries	8,483,808	8,905,383	8,899,549
5304	Management Fees	139,695,051	146,595,593	147,432,062
5308	Legal Expenses	15,998	57,891	61,788
5310	Insurance	45,044	45,127	70,141
5311	Service Contracts	2,631,393	2,556,745	2,466,435
5312	Rent Paid	945,945	910,814	961,409
5320	Education and Training	17,164	40,565	20,841
5588	PERAC Expenses	4,000,000	—	—
5589	Administrative Expenses	605,219	396,072	524,945
5599	Furniture and Equipment	422,828	126,851	105,889
5719	Travel	29,574	36,215	31,065
5897	Federal Grants Distributed	3,172,830	3,140,623	3,386,210
5900	3(8)(c) Reimbursement to General Fund <sup>2</sup>	40,191,430	48,274,990	46,340,895
5315	Professional Expense	152,003	126,235	224,591
5829	Amortization Expense	3,531,008	3,185,681	1,571,227
	<b>Subtotal</b>	<b>\$ 203,939,293</b>	<b>\$ 214,398,786</b>	<b>\$ 212,097,047</b>
<b>Pension Reserve Fund</b>				
	<b>Subtotal</b>	<b>\$ —</b>	<b>\$ —</b>	<b>\$ —</b>
<b>TOTAL DISBURSEMENTS</b>		<b>\$ 3,232,983,779</b>	<b>\$ 3,338,274,726</b>	<b>\$ 3,447,605,984</b>

## Investment Income

	Fiscal 2017	Fiscal 2018	Fiscal 2019
INVESTMENT INCOME			
Investment Income received from:			
Cash	\$ 439,810	\$ 761,820	\$ 1,025,576
Pooled or Mutual Funds	744,918,751	765,283,219	772,796,747
<b>Total Investment Income</b>	<b>\$ 745,358,561</b>	<b>\$ 766,045,039</b>	<b>\$ 773,822,323</b>
4884 Realized Gains	994,714,913	1,516,584,099	1,212,016,274
4886 Unrealized Gains	2,271,732,510	1,767,102,926	2,959,637,143
	<b>\$ 3,266,447,424</b>	<b>\$ 3,283,687,025</b>	<b>\$ 4,171,653,417</b>
4887 Less Unrealized Losses	(771,879,888)	(1,360,733,745)	(3,213,549,333)
4885 Realized loss	—	—	—
<b>Net Investment Income (loss)</b>	<b>\$ 3,239,926,096</b>	<b>\$ 2,688,998,319</b>	<b>\$ 1,731,926,407</b>
INCOME REQUIRED			
3293 Annuity Savings Fund	6,776,334	7,152,674	7,557,132
3294 Annuity Reserve Fund	72,514,394	68,394,812	63,217,073
3295 Military Service Fund	230	246	284
3298 Expense Fund	203,939,293	214,398,786	212,097,047
<b>Total Income Required</b>	<b>\$ 283,230,251</b>	<b>\$ 289,946,518</b>	<b>\$ 282,871,536</b>
<b>Net Investment Income</b>	<b>\$ 3,239,926,096</b>	<b>\$ 2,688,998,319</b>	<b>\$ 1,731,926,407</b>
<b>Less Income Required</b>	<b>283,230,251</b>	<b>289,946,518</b>	<b>282,871,536</b>
<b>Excess Income (Loss) to Pension Reserve Fund</b>	<b>\$ 2,956,695,845</b>	<b>\$ 2,399,051,801</b>	<b>\$ 1,449,054,871</b>

## Membership Information

### Active Members

Previous Year Ending June 30, 2018	91,261
Net Change During Report Year 2019	1,320
<b>Active Membership Current Year Ending June 30, 2019</b>	<b>92,581</b>

### Inactive Members

Previous Year Ending June 30, 2018	30,200
Net Change During Report Year 2019	1,495
<b>Inactive Membership Current Year Ending June 30, 2019</b>	<b>31,695</b>

### Retired Members, Beneficiaries and Survivors

Previous Year Ending June 30, 2018	66,661
Net Change During Report Year 2019	1,014
<b>Retired, Beneficiary and Survivor Membership Current Year Ending June 30, 2019</b>	<b>67,675</b>

Superannuation	35,563
Minimum Pension Retirements	118
Pop-Up Retirements	1,047
Early Retirements	719
RetirementPlus Retirements	25,346
Survivors–Active	1,972
Survivors–Retiree	1,985
Accidental Death Retirements	15
Ordinary Disability	380
Accidental Disability	317
Termination	182
Guardian	22
Minimum Pension–Survivor	9

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<b>Total Membership, June 30, 2019</b>	<b>191,951</b>
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## Significant Accounting Policies and Fund Descriptions

The accounting records of the System for June 30, 2019 are maintained on a fiscal year basis in accordance with the standards and procedures established by the Executive Director of the Public Employee Retirement Administration Commission. All investments are stated at market value at the end of the year.

### ■ Annuity Savings Fund

The Annuity Savings Fund is the fund to which all members' contributions are deposited. Members withdrawing from the System receive a refund of their total accumulated contributions and a required amount of interest. Refunds to members for the report year 2019 were \$40,947,148, refunds to beneficiaries of deceased active members were \$1,966,161 and transfers to other systems were \$16,515,129. The value of the Annuity Savings Fund was \$8.385 billion as of June 30, 2019. In 2019, interest is accrued at a rate of 0.1%.

### ■ Annuity Reserve Fund

The Annuity Reserve Fund is the fund to which a member's account is transferred upon retirement from the Annuity Savings Fund and the Special Fund for Military Service credit. The annuity portion of the retirement allowance is paid from this fund. Interest is credited monthly to this fund at the rate of 3% annually on the previous month's balance. In 2019, an amount of \$339.973 million was transferred to the Annuity Reserve Fund. The value of the Annuity Reserve Fund was \$1.909 billion as of June 30, 2019.

### ■ Military Service Fund

The Military Service Fund contains contributions and interest for members who receive creditable service while on a military leave. The balance in the Military Service Fund on June 30, 2019 was \$281,986. Contributions and interest income credited to the Military Service Fund were \$41,052 and \$284 respectively. In 2019, an amount of \$5,826 was transferred to the Annuity Reserve Fund.

### ■ Pension Fund

The Pension Fund contains the amounts appropriated by the Commonwealth of Massachusetts and investment funds liquidated from the Pension Reserve Investment Trust designated to pay the pension portion of each retirement allowance. The fund is fully funded by the Pension Reserve Fund.

### ■ Expense Fund

The Expense Fund is fully funded from amounts transferred from investment income for the purpose of administering the Teachers' Retirement System.

Management Fees are amounts paid by the Pension Reserve Investment Trust for managing investments. PERAC requires these costs be accounted for in the expense fund.

3(8)(c) Reimbursements to the General Fund are \$46,340,895 for 3(8)(c) payments received from other retirement systems, which are deposited into the MTRS account at Bank of America and then swept by Treasury and posted to the Commonwealth's General Fund. MTRS does not have spending authority on these funds.

Federal Grants Distributed equal fringe assessments collected in the amount of \$3,386,210. Federal grant fringe payments are a pass-through from school districts to MTRS to the Commonwealth's General Fund; MTRS role is administrative in that we collect, deposit and record federal grant fringe amounts to the Commonwealth's General Fund with no spending authority.

#### ■ Pension Reserve Fund

The Pension Reserve Fund is administered by the Pension Reserves Investment Management Board (PRIM Board). The Fund contains amounts appropriated by the Commonwealth of Massachusetts for the purposes of funding future retirement benefits. Any investment income in excess of the amount required to credit the Annuity Savings Fund, Annuity Reserve Fund, Expense Fund and the Special Military Service fund is credited to the Pension Reserve Fund. In 1996, Massachusetts State Teachers' and Employees' Retirement Systems Trust (MASTERS) was merged into the Pension Reserves Investment Trust (PRIT) Fund to form a consolidated pension fund under the management of the Pension Reserves Investment Management Board. Inactive member account balances must be transferred to the Pension Reserve Fund after a period of ten years of inactivity.

## Notes on the Financial Statements

### 1. Intangible Software Cost: New Line of Business Solution/MyTRS

#### Capital Asset Activity

Computer hardware and software is recorded at cost and is being amortized on a straightline basis over a useful life of 3 years and 7 years respectively.

	July 1, 2018	Increase	Decrease	June 30, 2019
<b>Assets Being Amortized:</b>				
Infrastructure	\$ 936,319	\$ —	\$ —	\$ 936,319
Computer Hardware	163,171	—	—	163,171
Computer Software	27,582,698	—	—	27,582,698
Total	\$ 28,682,188	\$ —	\$ —	\$ 28,682,188
<b>Less: Accumulated Amortization</b>				
Computer Hardware	\$ 163,171	\$ —	\$ —	\$ 163,171
Computer Infrastructure	936,319	—	—	936,319
Computer Software	23,382,586	1,571,227	—	24,953,813
	\$ 24,482,076	\$ 1,571,227	—	\$ 26,053,302
Net Book Value	\$ 4,200,112	\$ 1,571,227	\$ —	\$ 2,628,886

**2. 3(8)(c)**

Pursuant to G.L. c. 32, § 3(8)(c), these are pension benefit reimbursements received from other Massachusetts public retirement systems for the portion of the benefit attributable to the creditable service rendered in the other system. The total 3(8)(c) reimbursements received in 2019 for calendar year 2018 were credited to the Commonwealth General Fund. The Teachers' Retirement System's 3(8)(c) reimbursements from other systems during report year 2019 were \$46,340,895. The amount the Teachers' Retirement System paid to other systems was \$4,669,160.

**3. Commonwealth Pension Funding**

The Commonwealth appropriated \$1,566,228,063 for State and Boston Teachers for fiscal 2019.

**Pension Funding Schedule**

Boston Teachers Appropriation	\$ 143,145,563
State Teachers Appropriation	1,150,494,170
COLA	272,588,330
<hr/>	
<b>Total</b>	<b>\$ 1,566,228,063</b>

**4. Recovery of 91A Overearnings**

Members who exceed the earnings limits are required to remit payments to MTRS. The amount of \$12,576 was received in fiscal 2019, \$4,673 in fiscal 2018, prior year receipts were reported in Miscellaneous Income.

**5. Interest-Not-Refunded**

Interest-not-refunded is interest forfeited by members upon withdrawal from the System prior to becoming fully vested or forfeited due to criminal convictions. The interest forfeiture applies to members who commenced employment on or after January 1, 1984. The 2019 Interest-not-refunded of \$275,605 is recorded as revenue in the Pension Reserve Fund.

**6. Miscellaneous Income**

Miscellaneous Income includes a \$41,289 transfer from the Commonwealth's uncashed check fund. In FY 18, the State Treasury, with the assistance of MTRS and MSERS completed a special project that researched a backlog of uncashed retirement system checks, and returned those funds to the retirement systems for redeposit. This process is ongoing.

**7. Option B Refunds**

Upon the death of retirees electing Option B, refund payments are made to their beneficiary(ies) for the remaining balance in their annuity savings account. Starting in 2018, the amounts are reported in a separate line item; 2017 and prior years' payments were reported within the Annuities Paid line.



**8. Qualified Excess Benefit Arrangement (QEBA)**

To comply with Section 415 of the Internal Revenue Code which imposes limits on retirement benefits, the MTRS has funded a QEBA account. The QEBA account will provide benefits that cannot be provided under a qualified plan due to the limits of section 415. The balance is accounted for in cash.

The Activity in the Account:	Beginning Balance	\$62,095
	Revenue	0
	Less Payments	0
	Balance 6/30/19	\$ 62,095

**9. Estate Receivable and Payable**

When a benefit recipient dies, depending on the timing of the death notification relative to the monthly benefit warrant, this event may create a receivable or payable between the retirement system and the estate. At June 30, 2019 the amount due to be received from estates from 2016 to present is \$310,732 and the amount payable to estates including the deceased members' remaining annuity balance is \$1,293,454.

**10. Installment Accounts Receivable and Deferred Revenue**

Members may purchase creditable service on an installment basis. There are approximately 632 members with \$3,696,884 in potential receivables due for service purchases. Of that total, \$1,980,922 is due to be collected within one year. The remaining \$1,715,963 due to be collected after one year, is reported as a deferred revenue.

## Appendix A

## Detail of Accounts Receivable and Accounts Payable

			2019 Amount
ACCOUNTS RECEIVABLE			
4893	Estate Accounts Receivable <sup>9</sup>	\$	310,732
4893	Allowance for Doubtful Accounts		(168,084)
	<b>Net, Estate Accounts Receivable</b>	<b>\$</b>	<b>142,647</b>
1395	3(8)(c) Accounts Receivable	\$	14,747,503
1395.1	Allowance for Doubtful Accounts		(1,308,655)
	<b>Net, 3(8)(c) Accounts Receivable</b>	<b>\$</b>	<b>13,438,848</b>
4893	Installment Accounts Receivable <sup>10</sup>		3,696,884
4891	Member Deductions		81,647,154
1396.2	Overpayment Receivable		17,360
	<b>Total Accounts Receivable</b>	<b>\$</b>	<b>98,942,893</b>
ACCOUNTS PAYABLE			
5308	Legal	\$	31,983
2021	Accrued Payroll		359,023
5311	Service Contracts		265,750
5589	Administrative Expense		45,738
5719	Travel		2,295
5757	Estate Accounts Payable <sup>9</sup>		1,293,454
2022	Escrow Assets Held in Trust for Members		75,325
2020	Rent		3,594
2020.1	3(8)(c) Payable		138,198
2020.3	Annuity Accounts Payable		918,236
5900	3(8)(c) Due to General Fund		13,438,848
5599	Furniture & Expenses		16,398
1404	Education and Training Prepaid		245
	<b>Total Accounts Payable</b>	<b>\$</b>	<b>16,621,786</b>

## Appendix B

## Massachusetts Pension Reserves Investment Trust Statements

**MTRS Cash Fund** For the year ending June 30, 2019**Pension Reserves Investment Management Board**

84 State Street, Suite 250  
Boston, Massachusetts 02109

Deborah B. Goldberg, Treasurer and Receiver General, Chair  
Michael G. Trotsky, CFA, Executive Director

**State Teachers Retirement System****Cash Investment**

June 01, 2019 to June 30, 2019

Your beginning net asset value for the period was:

Your investment income for the period was:

Your total contributions for the period were:

Your total redemptions for the period were:

Your total exchanges for the period were:

Your state appropriations for the period were:

Your ending net asset value for the period was:

Month To Date	Fiscal Year To Date	Calendar Year To Date
539,611.88	29,048,392.78	16,333,020.79
156,109.98	1,734,079.83	914,588.85
105,892,050.77	860,223,280.96	452,981,737.51
(143,791,800.75)	(1,666,257,528.44)	(816,122,946.54)
84,032,702.30	822,080,449.05	392,722,273.57
0.00	0.00	0.00
<u>46,828,674.18</u>	<u>46,828,674.18</u>	<u>46,828,674.18</u>

As of June 30, 2019 the net asset value of your investment in the Cash Fund was:

**\$46,828,674.18**

If you have any questions regarding your statement, please contact your Senior Client Services Officer Paul Todisco (617) 946-8423.  
*A detailed statement of your account is attached to this summary sheet.*

## Appendix B

## Massachusetts Pension Reserves Investment Trust Statements

## MTRS General Allocation Account

For the year ending June 30, 2019

**Pension Reserves Investment Management Board**84 State Street, Suite 250  
Boston, Massachusetts 02109Deborah B. Goldberg, Treasurer and Receiver General, Chair  
Michael G. Trotsky, CFA, Executive Director**State Teachers Retirement System**

General Allocation Account

June 01, 2019 to June 30, 2019

Your beginning net asset value for the period was:

Your change in investment value for the period was:

Your exchanges from (to) the Cash Fund for the period were:

Your ending net asset value for the period was:

Month To Date	Fiscal Year To Date	Calendar Year To Date
28,280,393,683.59	28,559,010,611.70	27,074,001,557.62
1,122,303,869.98	1,581,734,688.62	2,637,385,567.22
(84,032,702.30)	(822,080,449.05)	(392,722,273.57)
<u>29,318,664,851.27</u>	<u>29,318,664,851.27</u>	<u>29,318,664,851.27</u>

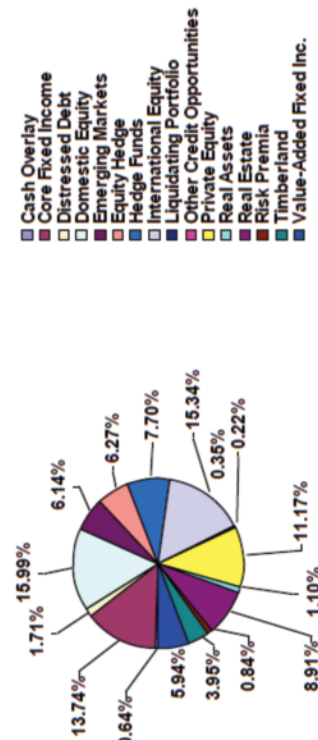
Net Change in Investment Value represents the net change through investment activities as follows:

Gross Investment Income:	105,029,197.19	771,062,666.68	411,931,906.50
Less Management Fees:	(28,570,449.07)	(147,432,061.75)	(73,912,702.00)
Net Investment Income:	76,458,748.12	623,630,604.93	338,019,204.50
Net Fund Unrealized Gains/Losses:	994,227,084.42	(253,912,190.09)	1,552,962,328.86
Net Fund Realized Gains/Losses:	51,618,037.44	1,212,016,273.78	746,404,033.86
Net Change in Investment Value as Above:	<u>1,122,303,869.98</u>	<u>1,581,734,688.62</u>	<u>2,637,385,567.22</u>

As of June 30, 2019 the net asset value of your investment in the PRIT Fund was:

\$29,318,664,851.27**PRIT Fund Core Asset Allocation**

As of June 30, 2019



If you have any questions regarding your statement, please contact your Senior Client Services Officer Paul Todisco (617) 946-8423.  
A detailed statement of your account is attached to this summary sheet.

## Appendix C

### Supplementary Schedules

#### **Members' Balances in the Annuity Savings Account**

For the fiscal year ending June 30, 2019

Previous Balance	\$	7,956,803,663
Total Additions Current Year		819,637,946
Total Interest Current Year		7,557,132
Reductions		59,428,438
Transfer to Annuity Reserves		339,967,652
Transfer from Pension Reserve Fund		—
<b>Balance Current Year</b>	<b>\$</b>	<b>8,384,602,651</b>

## Appendix C

## Supplementary Schedules

**Schedule 1: Cash Account Activity During the Year**

For the fiscal year ending June 30, 2019

Type of Account, Account Number, Interest Rate	Book value at the End of the Previous Year	Total Deposits this Year	Income Reinvested/ Redeposited into Account	Withdrawals During the Year	Total Book Value 6/30 this Year	Cash Income Paid to System Not Reinvested or Redeposited	Interest due and accrued 6/30
Bank of America	\$ 0	\$ 54,083,709	\$ 0	\$ 54,083,709	\$ 0	\$ 0	\$ 0
Mellon	110,495	909,490,933	0	909,504,400	97,029	0	0
Peoples United Bank Advanced	0	113,865	0	113,865	0	0	0
Peoples United Bank Escrow	120,445	0	0	45,120	75,325	0	0
MMDT	\$ 0	\$ 924,075	\$ 0	\$ 924,075	\$ 0	\$ 0	\$ 0
Bank Cash	\$ 230,940	\$ 964,612,582	\$ 0	\$ 963,747,093	\$ 1,096,429	\$ 0	\$ 0
Cash Available on MMARS	109,570,276	3,292,831,428	0	3,315,726,894	86,674,810	0	0
Total Cash	\$109,801,216	\$4,257,444,010	\$ 0	\$ 4,279,473,987	\$ 87,771,238	\$ 0	\$ 0
PRIT Cash Fund	\$ 29,048,393	\$1,727,515,260	\$ 0	\$ 1,709,734,979	\$ 46,828,674	\$ 0	\$ 0



## Appendix C

### Supplementary Schedules

#### **Schedule 5: Schedule of PRIT Funds**

For the year ending June 30, 2019

	PERAC Ledger Number 1199 PRIT Capital Fund
Market Value, End of Previous Year	\$ 28,559,010,612
Total Purchases this Year at Cost/Member Deductions	—
Reinvested Investment Income	771,062,667
Realized Gains	1,212,016,274
Realized Losses	—
Unrealized Gains	2,959,637,143
Unrealized Losses	(3,213,549,333)
Total Sales/Redemptions this Year: Amount Received	—
Cash Dividends Distributions to System this Year	—
Fees Paid	(147,432,062)
Market Value at the End of this Year	\$ 29,318,664,851

## Appendix C

## Supplementary Schedules

**Schedule 6: Summary of Investments Owned**

For the year ending June 30, 2019

	PERAC Ledger Number			
	1100 Cash	1198 PRIT Cash	1199 PRIT Fund	Total
Current Market Value	\$ 87,771,239	\$ 46,828,674	\$ 29,318,664,851	\$ 29,453,264,764
Commissions Paid During Current Year	\$ —	\$ 147,432,062	\$ —	\$ 147,432,062
Investment Income Received During Year	\$ 1,025,576	\$ 1,734,080	\$ 771,062,667	\$ 773,822,323

## Appendix D

## Prior Years' Statements of Funds Flow

For the year ended June 30, 2018

	2017 Balance	Receipts	Inter-Fund Transfers	Disbursements	2018 Balance
Annuity Savings Fund	\$ 7,552,916,713	\$ 803,955,503	\$ (350,373,195)	\$ 49,695,358	\$ 7,956,803,663
Annuity Reserve Fund	2,255,262,992	68,394,812	350,378,410	571,601,013	2,102,435,201
Pension Fund	—	1,483,498,330	1,019,081,239	2,502,579,569	—
Military Service Fund	230,034	21,657	(5,215)	—	246,476
Expense Fund	—	214,398,786	—	214,398,786	—
Pension Reserve Fund	17,330,198,882	2,421,107,752	(1,019,081,239)	—	18,732,225,395
<b>Total All Funds</b>	<b>\$ 27,138,608,621</b>	<b>\$ 4,991,376,840</b>	<b>\$ 0</b>	<b>\$ 3,338,274,726</b>	<b>\$ 28,791,710,735</b>

## INTER-FUND TRANSFERS

Description	Annuity Savings Fund	Annuity Reserve	Pension Fund	Military Service Fund	Expense Fund	Pension Reserve Fund	Total
New retirees	\$(350,373,195)	\$ 350,373,195	0	0	0	0	\$0
Repay pension and annuity and unretirement	0	0	0	0	0	0	0
New retirees	0	5,215	0	(5,215)	0	0	0
Funding pension benefits	0	0	1,019,081,239	0	0	(1,019,081,239)	0
	\$(350,373,195)	\$ 350,378,410	1,019,081,239	\$(5,215)	\$0	\$(1,019,081,239)	\$0

## Appendix D

**Prior Years' Statements of Funds Flow** (continued)

For the year ended June 30, 2017

	2016 Balance	Receipts	Inter-Fund Transfers	Disbursements	2017 Balance
Annuity Savings Fund	\$ 7,160,338,512	\$ 776,461,100	\$ (333,545,299)	\$ 50,337,600	\$ 7,552,916,713
Annuity Reserve Fund	2,394,870,213	72,514,394	333,553,979	545,675,594	2,255,262,992
Pension Fund	—	1,416,396,473	1,016,634,819	2,433,031,292	—
Military Service Fund	237,059	1,655	(8,680)	—	230,034
Expense Fund	—	203,939,293	—	203,939,293	—
Pension Reserve Fund	15,386,626,475	2,960,207,226	(1,016,634,819)	—	17,330,198,882
<b>Total All Funds</b>	<b>\$ 24,942,072,259</b>	<b>\$ 5,429,520,141</b>	<b>\$ —</b>	<b>\$ 3,232,983,779</b>	<b>\$ 27,138,608,621</b>

## INTER-FUND TRANSFERS

Transfer from...	Annuity Savings Fund	Annuity Reserve	Pension Fund	Military Service Fund	Expense Fund	Pension Reserve Fund	Total
Annuity Savings Fund to Annuity Reserve Fund	\$ (334,487,347)	\$ 334,487,347	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
Annuity Reserve Fund to Annuity Savings Fund	942,048	(942,048)	0	0	0	0	0
Military Service to Annuity Reserve Fund	0	8,680	0	(8,680)	0	0	0
Pension Reserve Fund to Pension Fund for Fund Pensions	0	0	1,016,634,819	0	0	(1,016,634,819)	0
	\$ (333,545,299)	\$ 333,553,979	1,061,634,819	\$ (8,680)	\$ 0	\$ (1,016,634,819)	\$ 0

## Appendix E

### Actuarial Valuation and Assumptions

The most recent actuarial valuation of the System was prepared by PERAC as of January 1, 2019.

The Total Normal Cost	\$	983,673*	
Expected Employee Contributions		719,517	10.16% of payroll
Net Normal Cost for the Employer		264,156	3.86% of payroll
The Actuarial Liability for Active Members	\$	22,387,633	
The Actuarial Liability for Retired & Inactive Members		31,476,508	
Total Actuarial Accrued Liability		53,864,141	
System Assets as of that Date		27,854,444	
Unfunded Actuarial Accrued Liability		26,009,697	

The principal actuarial assumptions used in the valuation are as follows:

<b>Investment Return</b>	7.25% per annum
<b>Rate of Salary Increase</b>	4.00 – 7.5% based on years of service

### Scheduling of Funding Progress

(Dollars in thousands)

Actuarial Valuation Date	January 1, 2019
Actuarial Value of Assets (a)	\$ 27,854,444
Actuarial Accrued Liability (AAL) (b)	53,864,141
Unfunded AAL (UAAL) (b-a)	26,009,697
Funded Ratio (a/b)	51.7%
Covered Payroll (c)	7,074,960,153
UAAL as a % of Covered Payroll ((b-a)/c)	367.63%

\*The Total Normal Cost does not include amortization of the Unfunded Actuarial Liability